

TRANSFARM

Vocational education and training for transhumance practitioners



(Photo: Kerstin Potthoff)

NATIONAL REPORT – NORWAY

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1. Introduction

The 'ERASMUS+'-financed project 'Vocational education & training for transhumance practitioners [TRANSFARM]' aims at providing farmers and rural entrepreneurs who want to start with and/or maintain transhumance with training material. At the same time, the project wishes to raise awareness about transhumance and its benefits for society. The project started in December 2021 and will end in May 2024. This National Report is one element of the training material and gives an overview about the state of transhumance in Norway.

The TRANSFARM project consists of seven partners: the Institute for Research on European Agricultural Landscapes (EUCALAND) e.V. (DE), Hof und Leben (DE), OnProjects (ES), the Technical University in Zvolen (SK), the Aristotle University of Thessaloniki (GR), the European Landowners' Organisation (BE) and the Norwegian University of Life Sciences (NO) – the latter coordinating the project. In addition, the project has three associated partners: The Polish Farm Advisory and Training Centre (PL), the Norwegian Institute of Bioeconomy (NO) and VetAgroSup (FR). The content of all National Reports will be combined into a Summary Report providing an overview of transhumance across national borders.

Transhumance is a seasonal, long-distance movement of livestock – accompanied by people – between fixed pastures located at varying distances to the permanent farm (TRANSFARM, 2022). In Norway, this practice includes seasonal farming (Norw. *seter/stølsdrift*) and reindeer herding, the latter being strongly connected to Sami culture. Another long-distance movement was the movement of livestock from Western Norway to markets in Eastern Norway (Isachsen, 1933, Fønnebø, 1988). This practice terminated about the turn of the 19th to 20th century. The TRANSFARM project does not consider it as transhumance since the livestock did not return to the permanent farm. For Norway, the TRANSFARM project focuses on seasonal farming.

Information presented in this report follows a structure similar to all National Reports and answers a set of questions agreed upon by the project partners. The report bases to a large degree upon the comprehensive published material about seasonal farming provided in books, reports and on internet pages. The report about seasonal farming by Bungler and Haarsaker (2020) which is based on a questionnaire survey among nearly 600 seasonal farm owners provides very important recent information about the situation of transhumance in Norway. The section 'Literature' gives an overview about the publications used for this report. Written material has been supplemented by interviews with experts and stakeholders.

2. Current situation of transhumance

2.1 Areas used, extent, livestock

Livestock grazing of outfield areas is a common practice throughout the whole country. However, the largest number of seasonal farms in use occurs in the central parts of Norway (Figure 1). Regions in which seasonal farming is of special importance are Nord-Østerdal, the Valdres region, Gudbrandsdalen – all located in Innlandet county – and Trøndelag (Bunger and Haarsaker, 2020). Moreover, in the upper parts of the Hallingdal valley (Viken county) several seasonal farms are in use (Støsliv i Hallingdal v/Budeienettverket, 2021). Common locations for seasonal farms are mountain areas above the treeline, forests, and the transition areas between them.

Seasonal farming reached its greatest extend in the mid-19th century with nearly 53,000 seasonal farms in use and has been declining since (Reinton, 1961,

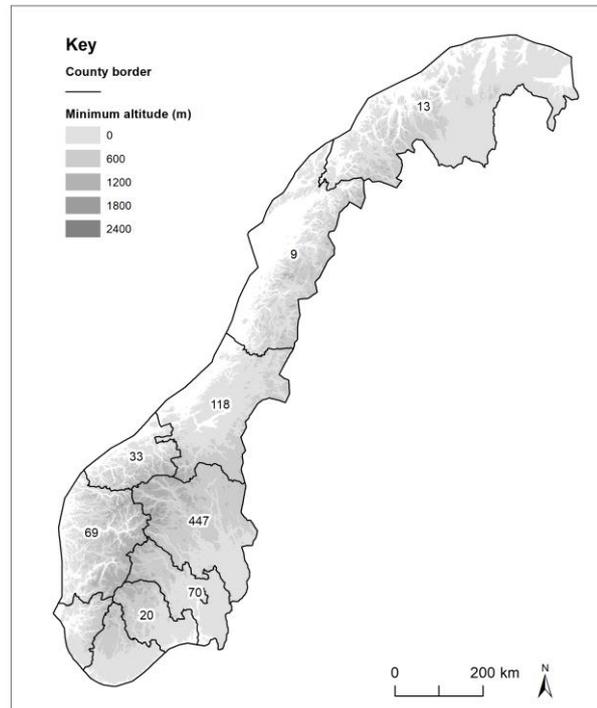


Figure 1. Number of seasonal farms in use (i.e., receiving financial support) in 2020; data for two counties are either not available or support was not provided; highest number of seasonal farms occurs in Innlandet county, second highest in Trøndelag county; Viken county is located south of Innlandet county (Data from Bjørlo and Løvberget (2021))

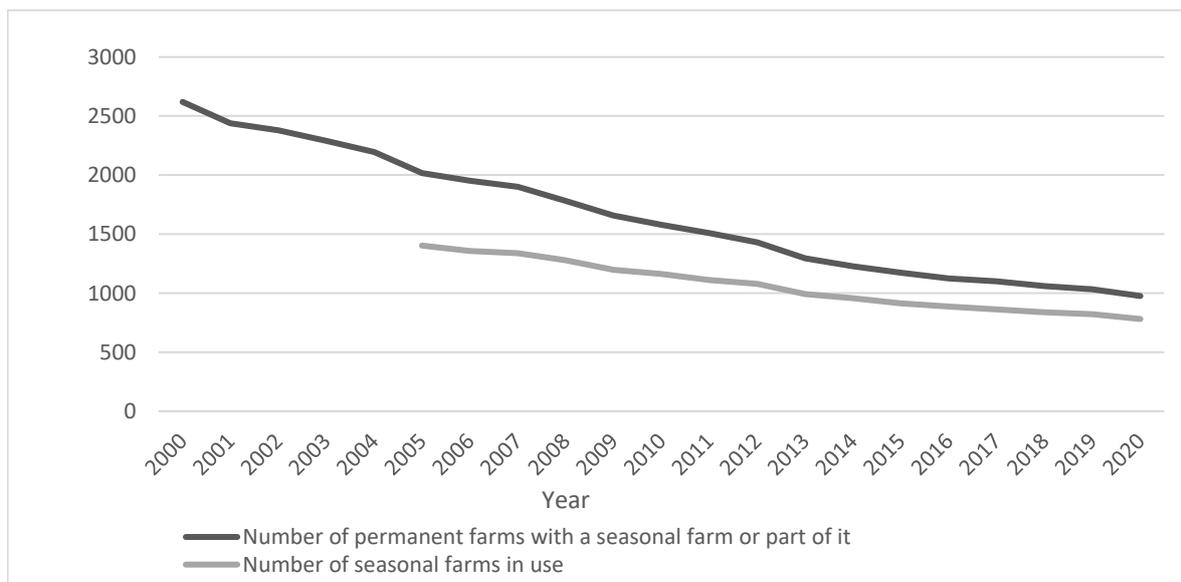


Figure 2. Number of seasonal farms in use (i.e., receiving financial support) and number of permanent farms with a seasonal farm or part of it (Data from Bjørlo and Løvberget (2021))

Potthoff et al., 2020). Also recently, despite financial support from the government, numbers have been in steady decline (Figure 2). In 2020, 781 seasonal farms were in use (Bjørlo and Løvberget, 2021). The statistics are based on seasonal farms receiving financial support. In 2018, about 14 % of the seasonal farms were joint seasonal farms driven by two or several permanent farms (Bunger and Haarsaker, 2020).

Cattle and goats are used for milk production at the seasonal farms. Other types of livestock may be taken to seasonal farms for grazing, e.g. sheep, suckler cows, calves, heifers, and pigs (Bunger and Haarsaker, 2020). Livestock such as sheep and cattle also graze outfield areas without any connection to a seasonal farm in use. In 2020, about 1,900,000 sheep, 250,000 heads of cattle, 56,000 goats and 8,500 horses grazed outfield areas (Figure 3) (Bjørlo and Løvberget, 2021, Statistics Norway, 2022c). No statistics exist about how many of them are kept and milked at seasonal farms.

The definition of seasonal farming takes its departure in milk production. Thus, for a seasonal farm to be considered in use – and to receive financial support – milk must be produced. In this respect, seasonal farming products are unprocessed milk and milk-based products such as butter, *rømme* (a kind of sour crème) and different types of cheese. In addition, intangible outcomes such as knowledge or experiences provided to visitors can be understood as seasonal farming products.

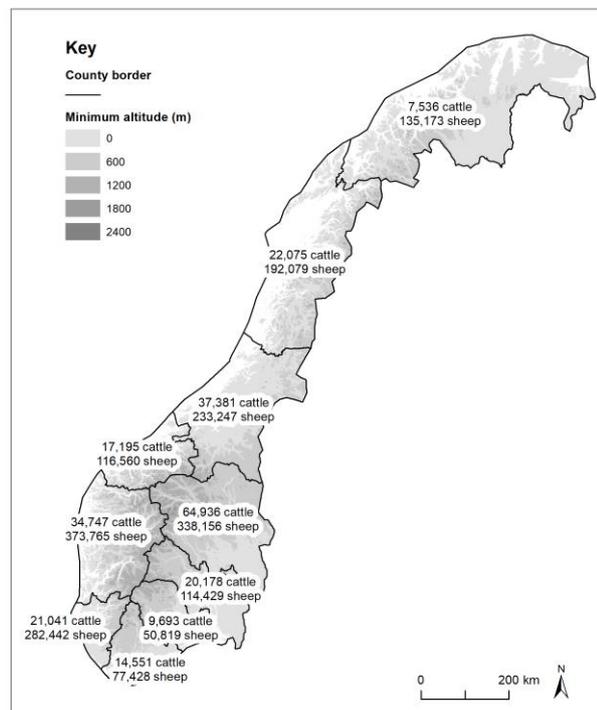


Figure 3. Number of cattle and sheep grazing outfield areas in 2020 (data based on application for grazing subsidies); data from Statistics Norway (2022c)

2.2 Transhumance practitioners

In a Norwegian context, transhumance practitioners are people who own or work at a seasonal farm. Commonly, the permanent farm owner or family members take care of most of the work involved in transhumance at single seasonal farms (i.e., used by one permanent farm) (Bunger and Haarsaker, 2020). About 87 % of the seasonal farms driven as joint seasonal farms employ dairymaids or -men (Bunger and Haarsaker, 2020). Although men are involved in milking and processing of milk, dairymaids are more common than dairymen.

A lot of the hired dairymaids/men have a relation to agricultural work, e.g., have or take a farm- or animal-related education. Dairymaids/men live in Norway on a permanent basis or come from abroad. In general, a large interest for working as dairymaid/man exists. In addition to

single persons, whole families may look for a job at a seasonal farm. The webpage of *Norsk seterkultur* (national association of seasonal farming culture; <https://www.seterkultur.no>) provides a space for advertisements where people looking for dairymaids/men and people interested in working as dairymaids/men can place ads.

Transhumance practitioners, institutions and others interested in seasonal farming can become members of *Norsk seterkultur*. The association aims at promoting seasonal farming and increasing knowledge among its members and tries to impact the framework within which transhumance practitioners develop their businesses. In addition, smaller local organisations exist, for example, for providing offers to tourists.

2.3 Kind of transhumance

Transhumance in Norway is characterized by a vertical movement (Figure 4). This kind of movement is typical for mountain regions where livestock moves between low- and high-altitude grazing areas. Commonly, only one seasonal farm is used during the grazing season. The livestock moves to the seasonal farms in early summer and returns to the permanent farms in late summer/early autumn. The timing of movement varies among regions.



Figure 4. Transhumance is characterized by a vertical movement. The photo shows an example from the western parts of Norway with a permanent farm located at the fjord and the – in about 1925 – abandoned seasonal farm at the slope (Kvamme et al., 2011);

Photo: Sebastian Eiter, NIBIO

2.4 Purpose and motivation

Transhumance is commonly carried out as part of a private business and of the annual rhythm on a farm. An important reason for maintaining seasonal farming is access to grazing resources (Daugstad et al., 2014, Bungler and Haarsaker, 2020) (Figure 5). When grazing resources at the permanent farms are restricted, farmers are dependent on using such resources in other areas. In terms of production, milk production and processing of milk is the main purpose of transhumance. Some transhumance practitioners also welcome visitors at their seasonal farm. They have different offers, such as experiences (e.g., contact with livestock, learning about seasonal farming and tasting seasonal farming products), and direct sales of products. To convey knowledge to and raise awareness among children and adults is an important purpose of their activity.

Livestock – especially goats – is used for landscape management purposes in Norway. The use of virtual fences (i.e., collars with GPS transmitters) provides new opportunities of letting livestock graze unfenced areas. The constant physical presence of a person who secures that the livestock stays within its designated grazing area is not necessary. However, although the maintenance of seasonal farming landscapes can be a motivation for transhumance practitioners, landscape management is not the main purpose of seasonal farming. A reason may be that milk production is a prerequisite for being eligible for seasonal farming support.



Figure 5. Seasonal farming can make use of resources that are challenging to use for other types of agricultural production; Photo: Kerstin Potthoff

Besides getting access to grazing resources and maintaining biologically diverse cultural landscapes, the motivation for transhumance practitioners to have livestock at a seasonal farm is strongly linked to the qualities of seasonal farming. This regards the quality of life for people and livestock and the quality of products. Seasonal farming can be seen as a lifestyle with which transhumance practitioners thrive and be a project the whole family takes part in. Seasonal farming offers, for example, contact with animals and being close to nature, while it requires to be self-reliant and able to find solutions. That transhumance practitioners are willing to spend their summer holidays working at a seasonal farm, shows that they are highly motivated. The quote from a former dairymaid conveys the passion for her profession:

‘Å gi meg bare en sommer til på setra’ – ‘Just give me one more summer at the seasonal farm’

Transhumance practitioners experience that their livestock thrives at the mountain pastures making seasonal farming important for animal welfare. Milk from mountain pastures has special qualities which allow transhumance practitioners to produce locally made high quality products. In addition to quality related issues, taking care of cultural heritage, local knowledge of use of resources and processing of milk through practice (Daugstad et al., 2014, i.e., upkeeping of traditions Bungler and Haarsaker, 2020) and producing food as a craftsmanship are important motivations for transhumance practitioners (Figure 6). Moreover, Bungler and Haarsaker (2020)



Figure 6. Processing of milk at the seasonal farms keeps local knowledge and traditions alive; Photo: Kerstin Potthoff

present several other motivations, such as, emptying the stables at the permanent farms for cleaning and maintenance and fulfilling outdoor grazing requirements for livestock.

2.5 Available knowledge about transhumance

A lot of historical knowledge about seasonal farming was made available during the first part of the 20th century by the Institute for Comparative Research in Human Culture. The institute collected a comprehensive amount of written material, and questionnaires were used to gather information about seasonal farming throughout the whole country. The information received through this effort was the basis for the three volumes about seasonal farming by Lars Reinton (Reinton, 1955, Reinton, 1957, Reinton, 1961) (Figure 7). The books provide overviews of topics such as the origin and development of seasonal farming, as well as a lot of place-specific information. The book by Svale Solheim (Solheim, 1952) gives a comprehensive overview of seasonal farming traditions.

Thus, a lot of general historical knowledge about seasonal farming is available. However, the availability of place-specific knowledge varies. Local information is available for some areas (see for example Strand and Ødegård, 2006, Kvamme et al., 2011) but lacking for others. To get access to place-specific historical information through oral sources has become increasingly challenging since a lot of past transhumance practitioners have passed away. Due to the declining number of seasonal farms and transhumance practitioners, knowledge in terms of 'facts' but even more important tacit knowledge about seasonal farming practices is not transferred to new generations of transhumance practitioners and thereby lost. Such a loss means both a loss of tangible and intangible cultural heritage including knowledge about how to use resources in areas that in terms of agricultural production can be considered marginal.

Awareness about and scientific interest in seasonal farming increased in the 1990s, and its contribution to biological diversity and attractive cultural landscapes has been investigated. Thus, a growing body of literature is available about topics such as the value of seasonal farming in a historical and current perspective, and consequences of abandonment of seasonal farming-based and other rangeland grazing (e.g., Olsson et al., 1995, Daugstad, 2000, Olsson et al., 2000, Wehn et al., 2012, Daugstad et al., 2014, Potthoff, 2017, Bryn and Potthoff, 2018, Bele et al., 2021).

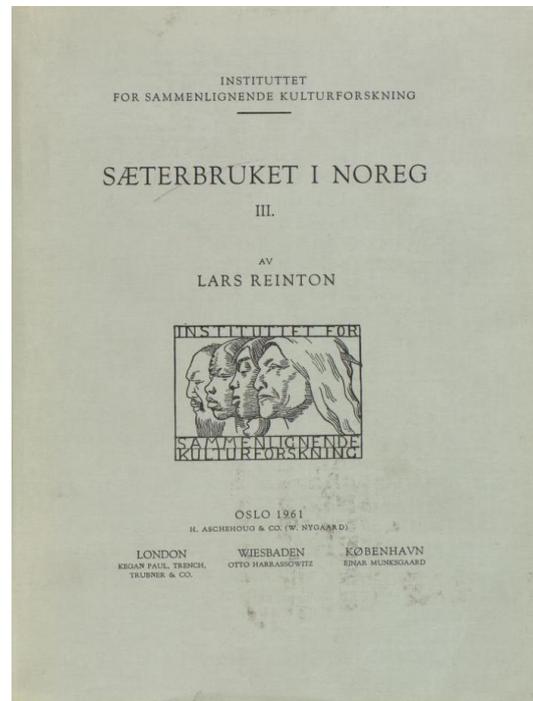


Figure 7. The three volumes about seasonal farming by Lars Reinton provide more than 1000 pages of knowledge about the history of seasonal farming

Between 2009 and 2015, the Norwegian Institute for Bioeconomy (NIBIO) carried out a mapping project about the current status of seasonal farms (Stensgaard, 2019) (Figure 8). Seasonal farms within 300 5 km x 5 km plots have been registered regarding their current use, accessibility, buildings, conditions of buildings and regrowth of areas around the buildings. The NIBIO mapping project is the only recent project that gives a countrywide overview of the status of seasonal farms and seasonal farming. AgriAnalyse carried out an investigation among seasonal farm owners which provides information about production-related topics as well as motivation of and challenges for transhumance practitioners (Bunger and Haarsaker, 2020). All these recent investigations increase the understanding of what is needed to encourage and maintain seasonal farming.

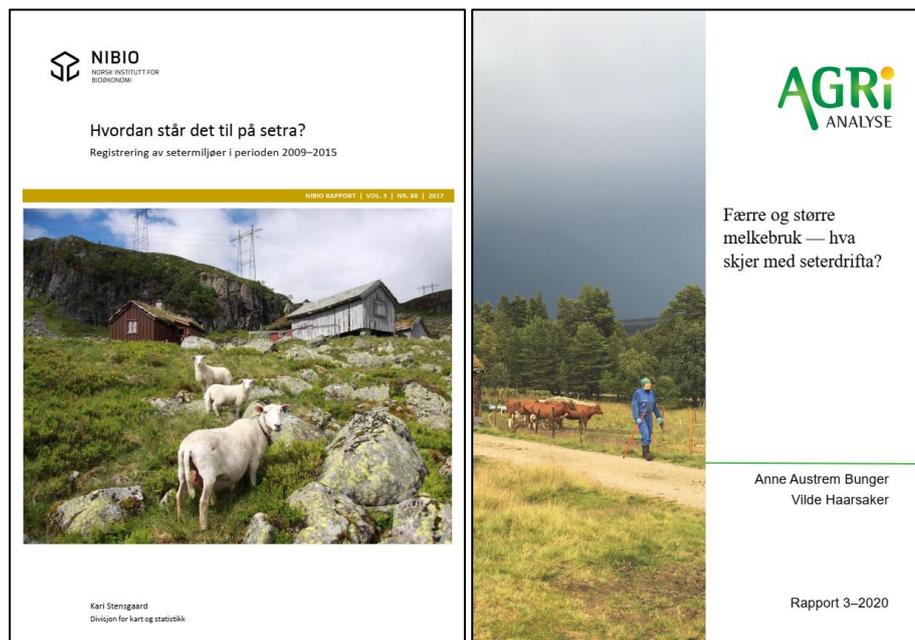


Figure 8. Two recent reports about the current status of seasonal farming

2.6 Awareness about transhumance

In an historical perspective, a large share of the Norwegian population had a connection to farming and farming culture. Many people living in more densely populated areas, had relatives in rural areas owning a farm. Family visits, contact within the families and working on farms during summer would create and maintain awareness about farming issues including seasonal farming. Moreover, second homes close to seasonal farms owned by family members who had moved to urban areas would support keeping a link to farming culture (Flognfeldt, 2004).

However, linkages between rural and urban areas through families have become weaker. The number of farmers is declining. Moreover, the share of the population living in urban areas has increased. With a declining number of seasonal farms in use fewer locations of awareness raising and knowledge transfer exist. The seasonal farming history is still visible in, for example, place names or products with 'seter' in their name. However, the degree to which people have

knowledge and understanding of seasonal farming differs. Some, for example, local visitors may have knowledge of and be interested in what seasonal farming means while others may see a seasonal farm as a place where their children can experience livestock or where they can buy food.

Thereby, seasonal farms welcoming visitors and especially schools are important arenas for raising awareness about the existence of seasonal farming and for transfer of knowledge (Figure 9). Although seasonal farming is a traditional practice, it can be carried out along a continuum from 'traditional' with, for example, milking by hand to 'modern' with modern stables, milking machine or even mobile milking robot (Stensgaard, 2019). Despite this range of opportunities seasonal farming is about food production and the ability to produce food which is as relevant in the past as it is today. Knowledge transfer at the seasonal farms can thereby help to increase awareness about how food is and can be produced.



Figure 9. Seasonal farms welcoming visitors are important for awareness raising and knowledge transfer; Photo: Kerstin Potthoff

2.7 Legal and funding situation

2.7.1 Legal framework

The ownership situation for areas used for seasonal farming differs. State commons, made up of mountains and forests, cover an area of about 26,000 km² (Statskog, 2022). The local farming communities have the right to use resources within these areas including grazing resources (Sevatdal and Grimstad, 2003). Basically, according to the *Fjellevten* (Mountains Act) (Landbruks- og matdepartementet, 2020), the herd size each farm can graze in the commons is restricted to the livestock that can be fed on the permanent farm during winter. Farmers can get the possibility to establish a seasonal farm in the commons, and seasonal farms and grazing rights can be transferred to farmers not belonging to the local farming community. The right to use a seasonal farm will terminate if it has not been used for 20 years. It is important to be aware of that milk production is not a prerequisite for a seasonal farm to be considered 'in use'.

Parish commons covering an area of about 7,500 km² were established when state commons – commonly forests – were sold to local communities or a group of persons (Sevatdal and Grimstad, 2003, NOU, 2018:11). Access to grazing resources and establishment of seasonal farms in Parish commons are similar to the regulations for state commons.

The most frequent type of commons is farm commons (Sevatdal and Grimstad, 2003). Farm commons are areas jointly owned by several farms. Thus, ownership and use rights belong to the farms. Resource use within this type of commons is based on agreements among the farmers, commonly established through practice since time immemorial. Throughout history, land reallocation processes can have turned farm commons into land owned by single farms. Finally, outfield areas may have always been owned by single farms, and the state may be a private landowner.

Thus, dependent on who is the owner of the land, procedures to get access to seasonal farms and grazing land will differ. Transhumance practitioners need to address and rent from, for example, farmers or the administrative bodies responsible for the management of State and Parish commons. Written contracts are required to be able to apply for seasonal farming support schemes. Basically, payment is expected for the use of seasonal farms and grazing land; however, no set level of payment exists. Moreover, a payment for the use of private roads may be expected. As a result of the declining number of seasonal farms in use, commonly, grazing land and seasonal farms are available for renting.

Basically, animal owners are responsible for any damage their animals may cause. However, damages caused grazing livestock are an exception of this general rule in accordance with the *Friluftsløven* (Outdoor Recreation Act) (Justis- og politidepartementet, 1998, Norges Bondelag, 2022a). The Act regulates the use of in- and outfield areas for recreational purposes. According to the Act, camping with a tent and any traffic is on one's own responsibility when it comes to damages of equipment and persons caused by animals. However, the person owning or taking care of the livestock still has to be attentive, e.g., not let livestock known to be aggressive graze in areas crossed by a hiking path. The Norwegian Farmers' Association asks farmers to set up signs

in areas suckler cows and their calves are grazing to make hikers aware of the livestock and to ask them to be respectful (Norges Bondelag, 2022b).

2.7.2 Funding

Seasonal farm owners can apply for different economic agricultural support schemes in line with all other farmers. For example, support schemes are available for livestock grazing, livestock grazing outfield areas, livestock breeds worth of preservation, organic farming and small- and medium-sized dairy farms (Landbruksdirektoratet, 2022a). If grazing livestock (sheep, goat, cattle, horses) or shepherd dogs are killed or injured by lynx, wolverine, bear, wolf or golden eagle seasonal farm owners can as other farmers apply for compensation provided by the government (Klima- og miljødepartementet, 2014). Moreover, TINE's (milk processing cooperative) obligation to fetch milk if a minimum amount is produced is also valid for seasonal farms meaning that the milk is transported from the seasonal farms to the dairy without extra costs for the seasonal farm owners (Bunger and Haarsaker, 2020). Public organisations such as Innovation Norway which provides business support for Norwegian enterprises, or The Savings Bank Foundation DNB may on application support investments at seasonal farms, e.g., new buildings or equipment.

The main support directed at seasonal farming is provided through the *Regionalt Miljøprogram* (Regional environmental program) which is administered by the counties. Such a governmental support for seasonal farming has been available in different forms since 1989 (Stensgaard, 2019). A minimum number of weeks of milk production, a minimum amount of milk produced, processing of milk at the seasonal farm or deliverance to a dairy are prerequisites for being eligible for funding. For the 2019 – 2022 Regional environmental program the minimum amount of support was set to 50,000 NOK (c. 5,000 EU) (Landbruksdirektoratet, 2022b). A few counties provide more funding for processing milk at the seasonal farm than for deliverance to a dairy (Landbruksdirektoratet, 2021). The national framework for the Regional environmental program for 2019 – 2022 opens up for support of seasonal farms welcoming visitors (Landbruksdirektoratet, 2022b). In addition to requirements regarding the duration of the livestock's stay at the seasonal farm, to be eligible for funding, a minimum number of animals needs to be milked and activities and services for tourists to be offered. Activities and services can be a café, taking part in and learning about activities going on at a seasonal farm (e.g., milking, processing of milk) or overnight stays. However, only one county gave support for this kind of activity (data from 2021).

In addition, the counties can decide to give support through the Regional environmental program for grazing or cutting of infield areas of high value created by continuous agricultural use (Landbruksdirektoratet, 2022b). For example, fenced in areas of seasonal farms can be included in the support scheme. Production of milk at the seasonal farm is no prerequisite for being eligible for this funding, although provided by the Regional environmental program. On national level highly valued cultural landscapes can be designated as *Utoalgte kulturlandskap i jordbruket* (Selected cultural landscapes) (Landbruksdirektoratet, 2022a). A few of them are seasonal farming landscapes and financial support for Selected cultural landscapes can in such a

case include a range of activities to maintain the cultural landscapes such as grazing, maintenance of buildings or establishment of seasonal farming (Midtre Gauldal kommune, 2021).

2.8 Vocational education, training offers for transhumance practitioners and training gaps

To use the resources at a seasonal farm a broad range of knowledge is needed. This range of knowledge includes knowledge about livestock keeping (e.g., animal welfare, fodder, quality of pastures). Milking cows and goats requires in addition knowledge about milking and hygienic requirements but also the ability to fix equipment. Due to long distances, it may take time before professional help is available. If the milk is processed at the seasonal farm a huge body of additional knowledge is required. Finally, marketing of potential products and welcoming visitors requires other sets of skills. Not at least, dependent on where their practice is located along the continuum from 'traditional' to 'modern' and on which kind of previous knowledge practitioners may have, transhumance practitioners may need different types of knowledge (Figure 10).

Where knowledge can be acquired differs. Pupils can choose a secondary school with specialisation in agriculture, and agricultural education is offered at university level. However, little of this education seems to explicitly focus on seasonal farming. Exceptions are, for example, the secondary school *Sogn Jord- og Hagebruksskule* which includes a stay at a seasonal farm dedicated to traditional production with goats into its education. Moreover, the school offers vocational education in farm-based cheese production. The secondary school *Storsteigen videregående skole* owns a seasonal farm. Pupils are involved in the work at the seasonal farm such as milking of cows and goats and get an insight into the processing of milk. Some seasonal farms offer courses and education for those interested in milk processing and the dairymaid/man profession. These courses are important for the conveyance of local knowledge and of the complex skills needed to run a seasonal farm and to master the craft of milk processing. Finally, Innovation Norway offers courses such as packing, sale and distribution of



Figure 10. Different ways to carry out seasonal farming may require different types of knowledge such as milking by hand and milking with machine; Photos: left Oskar Puschmann, NIBIO; right Kari Stensgaard, NIBIO

products for tourism industry businesses. Thus, educational offers for transhumance practitioners and those who want to become practitioners are available; however, it will be up to each practitioner to find and select the offers she/he needs to become a successful transhumance practitioner.

3. History

Early traces of pastoral use of mountain areas date to the Late Neolithic (2400–1800 BC) (Prescott, 1999). Seasonal farming dates back to the Iron Age (500 BC – 1050 AD), probably even to the Bronze Age (1800 – 500 BC) (Kvamme, 1988). It expanded during and shortly after the Viking Age (800 – 1050 AD) until, among other factors, climate change and the Black Death in the 1300s resulted in a concentration of agricultural activities in the most productive areas (Reinton, 1961). Seasonal farms in the mountains were abandoned while former mountain farms could be turned into seasonal farms. Seasonal farming was fully established at the transition from the Middle Ages (1050 – 1537 AD) to the post-medieval era and experienced a new expansion in the 1500-, 1600- and 1700-hundreds (Reinton, 1961). During this expansion period permanent farms that had been turned into seasonal farms could be re-established as permanent farms, abandoned seasonal farms could be taken into use again and new ones established. The largest number of seasonal farms in use occurred in about the 1850s (Reinton, 1961).

Seasonal farming – occurring throughout the whole country – allowed farmers to get access to resources such as summer grazing and winter fodder at a larger distance to the permanent farm. Thus, areas close by the farm could be used, for example, for food and winter fodder production instead of grazing. Farms could have access to seasonal farms in different altitudes which allowed them harvesting resources from large areas throughout different periods of the grazing season. Three main types of seasonal farming occurred: (1) ‘Complete’ seasonal farming with a movement of livestock to one or several seasonal farms, milking and processing of milk and commonly production of winter fodder, (2) ‘milk’ seasonal farming where the dairymaids went for milking the livestock in the evening stayed overnight, milked and returned to the permanent farmstead with the milk for processing and (3) ‘hay’ seasonal farming with the main aim of producing winter fodder (Figure 11) (Reinton, 1955).



Figure 11. An example of a 'hay' seasonal farm from Nordfjord. The main aim was to produce winter fodder; Photo: Kari Stensgaard, NIBIO

Commonly, areas in higher altitude were used for seasonal farming – alpine (i.e., above the treeline) and forested areas. However, movement from the permanent farm to the seasonal farm could also be rather horizontal than vertical, for example, in coastal areas from mainland to islands (Reinton, 1955). Regional and local variability in, for example, types of products and movement patterns were large (Reinton, 1955). In some areas no winter fodder was harvested at the seasonal farms (Potthoff, 2004). In other areas the livestock returned to the seasonal farms during winter to consume the winter fodder instead of transporting it to the permanent farm (Isachsen, 1938, Reinton, 1955).

Part of or the whole farming family was involved in moving the livestock to and from the mountains (Reinton, 1955). In some areas, neighbouring farms moved on the same day giving the opportunity to support each other during the move. Means of transport were dependent on distance and steepness of the path. Besides walking and carrying equipment, people and/or equipment could be transported by horse, sledge, boat, or other types of vehicles (Reinton, 1955). The trip could be dangerous. Livestock could be killed when getting off small paths and falling down steep slopes.

The right to use the paths for moving the livestock and to cross other farmers' land was a customary right – established through use from time immemorial (Reinton, 1955). The same regards the right to let livestock graze at specific resting places both during daytime and when long distances required an overnight stay. Cattle, goats, and sheep were common livestock at the

seasonal farms for milk production. However, also horses – especially when not needed for work at the permanent farm – and pigs could be taken for grazing (Reinton, 1955).

Commonly, women took care of the livestock and the processing of milk (Reinton, 1955) (Figure 12). The dairymaid could be the farmer's wife. In such a case, often the whole family stayed at least for a limited time at the seasonal farm. The farmer's wife and, for example, an older daughter would be responsible for the livestock while the farmer and other older children would take care of harvesting winter fodder. The dairymaid could also be an older daughter or a hired woman. Dairymaids were expected to do other work than taking care of livestock and processing milk, e.g., spinning, knitting, or sewing (Reinton, 1955).

Especially during the times when large predators such as wolf, bear, wolverine, and lynx made keeping livestock challenging, herders would accompany the livestock while grazing (Reinton, 1955). Herders were responsible for guiding the livestock to the grazing areas, keeping it out of dangerous terrain and areas meant for winter fodder production, and getting it to the seasonal farmstead in time for milking. Herders could also keep watch over the livestock during night, help the dairymaid or produce tools such as brooms. Commonly, children – both boys and girls – between about 10 – 15 years were herders. However, herders could be as young as 7 years and up to about 20 years. During times when predators were especially challenging, rather older boys or grown-ups would be herders. The strong decline of large predators towards the 20th century reduced the necessity of herding (Reinton, 1955). Dogs could be used to protect the livestock; however, this practice varied among regions and throughout history (Reinton, 1955).

Seasonal farming culture and landscapes became part of the Norwegian national identity building in the 1800s that took its departure in farming culture – especially in mountain areas, rural landscapes, and the free Norwegian farmer (Daugstad, 2000). A broad range of traditions – varying among regions – were linked to, for example, the movement and treatment of livestock and processing of milk (Solheim, 1952). For instance, a selection of specific characteristics was used to choose the cow that carried the (largest) bell. Another example is the chants or short songs (*lokk*) the dairymaid could use to call the cows and goats for milking (Reinton, 1955). Other



Figure 12. Commonly women were responsible for the processing of milk, and some spend many summers at a seasonal farm; Source: The County Archive of Sogn og Fjordane

practices were linked to the believe that non-human creatures such as gnomes and goblins needed to be pacified, for example, by spilling a bit of milk after arriving at the seasonal farm (Solheim, 1952).

Seasonal farming practices needed to continuously adapt to changes in the availability and quality of natural resources caused by, for example, annual fluctuations in weather conditions (Potthoff, 2004). Besides this 'integral' flexibility, seasonal farming practices have altered and transformed. The most comprehensive recent transformations occurred since about the 1850s. For example, when milking of sheep terminated, sheep could be herded separately from the other livestock in large flocks consisting of animals from different farms (Reinton, 1955). The already mentioned decline of large predators in combination with the cessation of milking sheep meant that sheep could graze without daily attendance.

As consequence of technological development and rationalization in farming and changes in society as such, the exploitation of outfield resources lost importance. Introduction of fertilizer, establishment of local dairies, movement of rural population to towns are examples of developments that in sum resulted in an abandonment of seasonal farming (Potthoff, 2004). The reduced grazing pressure and declined use of firewood has comprehensive impacts on the landscape (Bryn and Potthoff, 2018, Bryn and Potthoff, 2022). The whole appearance of the landscape changes (Potthoff, 2013): Areas opened-up by seasonal farming and outfield grazing regrow and plant species dependent on disturbance by livestock decline. Elements of cultural heritage such as foundation walls of former buildings become less visible (Figure 13). Regrowing areas are more difficult to navigate and less attractive for recreational activities and not at least for future grazing.



Figure 13. As a consequence of abandonment of seasonal farming formerly open areas regrow and foundation walls of buildings become overgrown; Photos: Sebastian Eiter, NIBIO

4. Values and meaning of transhumance

Seasonal farming provides society with a range of benefits. Goods and services include food and landscapes, and their production is closely interlinked. Mountain pastures are the basis for high-quality food production while grazing maintains the open seasonal farming landscapes. Seasonal farming, including grazing, hay making and collecting firewood, have created biologically diverse landscapes (Olsson et al., 2000, Olsson et al., 2004). Seasonal farming landscapes are valued for offering a range of recreational opportunities such as hiking, cycling, and fishing (Figure 14). Being outside and experiencing nature is an asset itself but is also appreciated for wellbeing and positive health effects.

Grazing of mountain pastures is an important contribution to animal welfare. To find grazing areas and move in rugged terrain requires 'fit' livestock. Seasonal farming, processing of milk and offering services to tourists can be an opportunity for diversification of farms and can offer employment for other people than the farmer and his/her family. Moreover, the cases of Valdres and Budalen (Trøndelag county) show that by working together within a network it is possible to establish a more comprehensive offer for tourists. Offering varied activities can again increase the attractiveness of an area for tourists to visit.

Knowledge transfer at the seasonal farms is an important contribution to increasing awareness about food production and sustainability, the importance of knowledge about best resource use at different times of the year, cultural history, and identity. Cultural history and identity relate to



Figure 14. Seasonal farming landscapes are valued, among other reasons, for providing recreational opportunities; Photo: Kerstin Potthoff

a broad range of topics such as milk processing and products, transport, tools, livestock breeding, linguistic heritage and not a least craftsmanship.

To produce handmade butter or cheese requires extensive – often tacit –knowledge. For example, how much wood is needed to heat milk quickly to 32 °C and then slowly to 38 °C? Different types of cheese have been produced with a lot of local and regional variation. Traditionally, *surmelk* (curdled milk) was used for cheese production and within this kind of production an especially rich cultural history exists (Gudheim, 2013). A variety of tools were used for the processing of milk such as sieves, wooden casks and forms, equipment for taking out casein and for cleaning. Several regional cattle, goat and sheep breeds occurred. Variety has been lost; however, transhumance practitioners keep a larger share of these cattle breeds than the national average (Bunger and Haarsaker, 2020).

Cultural history and identity are still living in different ways. Linguistically the term ‘summer farm’ – a term with positive connotations – is still present. It is part of place names and used for product names. This kind of usage relates back to cultural history but does not – without any additional information or knowledge – provide the historical context that frames seasonal farming. Local histories about, for example, single seasonal farms, their owners and users, tools and cheese production and the rich milk processing terminology are an important way to convey this kind of knowledge. However, to keep seasonal farming culture alive it needs to be practised, and knowledge has to be transferred through practice – on the one hand to maintain traditions, on the other hand to pass on new practices and knowledge that can help transhumance practitioners to adapt their productions to a continuously changing environmental, political and social context.

5. Challenges to face, needs and opportunities

A basic prerequisite for the occurrence of seasonal farming is the existence of small- and medium-sized dairy farms. Average herd size on farms producing and potentially processing milk on seasonal farms is lower than average national herd size per farm (Bunger and Haarsaker, 2020). However, the overall number of farms has declined and the average herd size of milking cows and goats per farm has increased steadily (Statistics Norway, 2022b, Statistics Norway, 2022a) (Figure 15). This development indicates that remaining small can be a challenge.

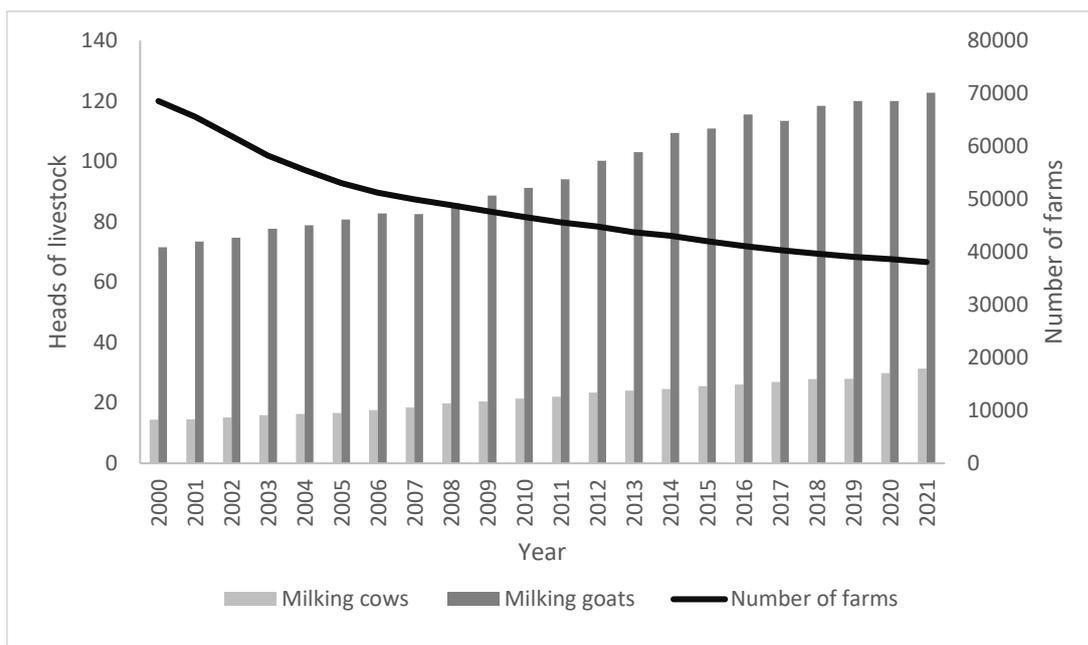


Figure 15. Changes in number of farms and average heads of livestock per farm, data from Statistics Norway (2022b), and Statistics Norway (2022a)

According to new regulations, cattle need to have the possibility to move freely in the stables from 2024 and to have access to outdoor areas throughout the entire year from 2034. These regulations require investments which can be an economic challenge especially for small and medium-sized farms. The percentage of farmers who have stables in accordance with the new requirements is lower for those owning a seasonal farm than the national average (Bunger and Haarsaker, 2020).

Although all transhumance practitioners carry out their business within the same political framework, what are (main) challenges for establishing and maintaining seasonal farming varies among them. Seasonal farm owners taking care of milking and potentially processing of milk may face other challenges than those participating in a joint seasonal farm or hiring a dairymaid/man. Hired dairymaids/men may again experience other challenges. In addition, the personal situation of a transhumance practitioner, such as family status – having small children, helping hands available or not – or job situation – easy or difficult to combine with commuting to a seasonal farm – has an impact on her/his challenges and needs. Moreover, not one single reason may be the cause of maintaining or terminating seasonal farming but rather a combination of different factors. Thus, the following overview of challenges does not imply any order regarding importance, and not all challenges may be relevant for all transhumance practitioners. The list is based on Bunger and Haarsaker (2020) and interviews carried out for this report.

- The stay and work at the seasonal farm need to be coordinated with the work at the permanent farm and other activities, e.g., repair, maintenance and harvest at the permanent farm, potential other jobs, delivering and picking up children from school/kindergarten, taking part in social activities. Thus, logistics are a challenge.

- To run a seasonal farm requires a large amount of work especially when the milk is processed at the seasonal farm.
- Seasonal farming implies costs that can challenge the economic benefits of seasonal farming. Costs are, for example, expenses for hiring workforce, transport, fuel for a diesel generator when the seasonal farm is not connected to the grid, and maintenance of buildings, private roads, stables and milking machines coming in addition to the equipment at home. In addition, transhumance practitioners may experience that the amount of milk produced per cow declines when the cattle move to the mountain pastures.
- Large investments in new equipment, such as a milking machine, can be an economic challenge.
- Qualified and experienced workforce is not always easily available.
- Current criteria for being eligible for economic support through the Regional environmental program, such as minimum 6 weeks of milk production and minimum 45 l cow or 25 l goat milk per day, is a challenge for, for example, those with restricted grazing resources at the seasonal farm.
- Legal rules for milk production and processing can be difficult to fulfil at the seasonal farm.
- With a declining number of seasonal farms and transhumance practitioners transfer of knowledge of processing of milk into a broad range of products including all 'smart' solutions and place-specific knowledge about, for example, quality of pastures, is increasingly challenging.

Bunger and Haarsaker (2020) point out that to maintain and develop seasonal farming a national 'major effort' is needed. They highlight three main areas of action: 1) strengthen the financial support for seasonal farming through the Regional environmental program (e.g., increase the amount of support, reduce minimum requirements), 2) prioritize investments in seasonal farms in support provided through Innovation Norway (gives business support for enterprises), 3) strengthen the support for small- and medium-sized dairy farms. In addition, issues such as adjusting the legal framework, for example, for milk processing or requirements for stables, to the specific situation at the seasonal farm and developing technical solutions should be considered (Bunger and Haarsaker, 2020).

Transfer of knowledge is critical to maintain the rich seasonal farming culture. Educational offers are available; however, an education dedicated to seasonal farming would make it easier for those interested in becoming a transhumance practitioner to get different types of knowledge within one education. Besides courses offered by schools and seasonal farms learning from each other is an important way to transfer knowledge. Clusters of seasonal farms provide opportunities for collaboration and acquiring the often tacit knowledge needed to run a seasonal farm.

Not at least, seasonal farming's contribution to food production – as one way of contributing to the overall food production in Norway – in addition to the other values it provides, needs to be recognized. A supportive environment is important as an encouragement for transhumance practitioners to maintain their activities and inspire others to start.

6. Conclusions

Seasonal farming is an important part of Norwegian cultural history. The ambitions and engagement to get seasonal farming enlisted on the UNESCO cultural heritage list as immaterial cultural heritage underlines this importance. However, seasonal farming regards not only history. It is a current practice that makes use of outfield grazing recourses and produces food and offers other types of values. Steadily declining numbers of seasonal farms show that current support for seasonal farming is not enough to maintain it. A major national effort is needed to keep this living cultural history and its contribution to future food production alive.

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